

Compliance Level to Food Labelling Regulation for Micro and Small-sized Enterprises Products: A Descriptive Study in Wonosobo District, Indonesia

Tingkat Pemenuhan Regulasi Label Pangan Olahan pada Industri Rumah Tangga: Studi Deskriptif di Kabupaten Wonosobo, Indonesia

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Abstract. Food labelling is an effective tool in protecting consumer health with respect to safety and nutrition. Complying with labelling regulations is essential in preventing product recalls. Thus, the objective of this study was to determine the extent of adherence to food labelling regulations by micro and small-sized enterprises (MSEs) in Wonosobo District, in accordance to the existing guidelines. Primary data were collected through a market survey approach, with analysis conducted through purposive sampling in shops, stalls, home industries, markets, and supermarkets. Content analysis was employed to evaluate four categories of processed food: flour/starch-based products, water-based flavored drinks, processed fruit products, and processed grain, nut, and tuber products, totaling 92 products. The compliance level with labelling regulations was evaluated based on the principal display panel, labelling formats, general labelling requirements, and prohibited statements on the label. The results revealed that the compliance level of labelling flour/starch-based products was good, with an average of 75%. In contrast, the average compliance level for water-based flavored drink products was 58%, while the average compliance levels for processed fruit products and processed grain, nut, and tuber products were 54 and 59%, respectively, indicating a lower level of compliance compared to flour/starch-based products.

Keywords: compliance level, food labelling, food regulation, small-sized food enterprises

Abstrak. Label pangan berperan sebagai alat perlindungan keamanan pangan bagi konsumen. Pemenuhan pelabelan bagi produsen dapat membantu melindungi produk dari penarikan peredaran. Penelitian ini bertujuan mengidentifikasi tingkat pemenuhan pelabelan pangan olahan oleh usaha mikro dan kecil (UMK) di Kabupaten Wonosobo berdasarkan peraturan yang berlaku. Desain penelitian adalah deskriptif dengan pengumpulan data primer secara purposive melalui pendekatan survei pasar. Total sampel sebanyak 92 produk yang dikumpulkan dari toko-toko, warung, industri rumah tangga, pasar, dan supermarket. Tingkat pemenuhan pelabelan dinilai berdasarkan teknis pencantuman label, teknis penulisan label, keterangan minimum untuk label, serta keterangan yang dilarang pada label. Data dianalisis berdasarkan isi (content analysis). Hasil penelitian menunjukkan tingkat pemenuhan pelabelan rata-rata produk tepung dan hasil olahannya adalah 75% (baik). Sementara itu untuk tingkat pemenuhan pelabelan masih kurang pada minuman serbuk (58%), hasil olahan buah (54%), dan hasil olahan biji-bijian, kacang-kacangan dan umbi (59%).

Kata kunci: usaha mikro kecil pangan, label pangan, regulasi pangan, tingkat pemenuhan

Practical Application: This descriptive study of food labelling compliance level is a preliminary study in analyzing the implementation of food labelling regulations in micro and small-sized enterprises (MSEs) products. The study can be used as reference to determine a food labelling policy for MSEs. Based on the findings of this study, technical guidelines for food district inspectors also can be established.

INTRODUCTION

Micro, small and medium-sized enterprises (MSMEs) are prospective industries that can be developed. MSMEs are the drivers of economic growth in developing Asia, making up over 97% of total enterprises and employing over 50% of the workforce. Meanwhile, the MSMEs in Indonesia account for 99% of

all business, provide 89% of private-sector employment, and contribute 61.1% of the total GDP in 2020 (Asian Development Bank 2020). The forecasted GDP growth for 2020 to 2021 remains strong at a projected 4.8%. The markets evolution enables consumers to select from various product types and attributes; hence, manufacturers employ various strategies to satisfy these diverse consumer needs. However, marketing practices that may

result in negative consumer behavior were discovered. The common cases are decreasing the quality of products, unclear or misleading information, and fraudulently (Susanty 2019). One of the problems is marketing packaged, processed food products that do not comply with labelling requirements, especially in the MSMEs sector.

According to Government Regulation Number 69 of 1999 on Food Labelling and Advertisement, a food label is any information on food in the form of pictures, text, or combination of both included in, attached to, or form part of food packaging (President RI 1999a). Indonesian Law Number 8 of 1999 on Consumer Protection states that consumers have the right to obtain apparent, correct, and truthful information regarding the conditions and assurances of products (President RI 1999b). Manufacturers are expected to oblige these consumer rights, and the importance of labelling is one of the promotional efforts to protect public health by providing nutritional value information. Additionally, the label is a feature of the packaging that can influence most purchasing decisions to increase product sales.

This study referred to the latest regulations regarding labelling and adjusts to the improvement of science and technology in food processed labelling. The Head of the National Agency of Food and Drug Control (NADFC) has set the latest regulations regarding processed food labelling, the NADFC (2021). However, this study has not been conducted in Wonosobo District (purposive). Micro and small-sized enterprises (MSEs) are critical for emerging economies but challenge policymakers looking to support their growth, including food processed labelling regulation. Based on this description, it is crucial to identify the compliance level of food processed labelling by MSEs products in Wonosobo District, compared to existing regulations.

MATERIALS AND METHODS

Materials

The data for this study was collected from 92 micro and small-sized enterprise food products that had obtained registration permits from the Wonosobo District Health Office in Central Java, as evidenced by their P-IRT numbers.

Data collection

First step was collection of secondary data from the Wonosobo District Health Office, including data on the number of MSEs and their products obtained a P-IRT number until December 2019. The MSEs products were further grouped into 15 types based on NADFC (2018a). Furthermore, processed food products were classified by NADFC (2019b) on Food Categories.

Sampling was conducted by purposive sampling in shops, stalls, home industries, markets, and supermarkets in Wonosobo District. Primary data were collected from the market survey method. Total sample in this study was determined by Slovin's formula (Altares *et al.* 2003).

$$n = \frac{N}{1 + Ne^2} \dots\dots\dots (1)$$

Note: n= total sample size; N= total food processed products; e = percentage of precision (10%). The total sample used was 92 (n) products based on the highest number of MSEs and purposively selected water-based flavored drinks to represent the beverage group. The number of selected food samples, proportionally determined by the following formula.

$$nk = \frac{NK}{N} \times n \dots\dots\dots (2)$$

Note: nk = categorical sample size; NK= categorical food processed size.

The correct label, which served as a guideline in this study, is based on the following sources: President RI (1999a), President RI (2012), President RI (2004), NADFC (2018a), NADFC (2018b), NADFC (2021), and NADFC (2022).

Data analysis

Data were analyzed using content analysis. Components of the label include the primary display panel, the labelling formats, the labelling requirements, and the forbidden statement on the label. Based on the previous study, the labelling compliance level category is in the excellent, good, and less categories between 85–100%, 60–84%, and 0–59%, respectively. The compliance level of the labelling requirement was calculated using the following equation (Wijaya and Rahayu 2014). The equation for the labelling requirements for each element and for the average compliance level for each type of product.

Compliance level for each element (%) =

$$\frac{\text{Number of complying food products}}{\text{Total food products}} \times 100\% \dots\dots\dots (3)$$

Average of compliance level (%) =

$$\frac{\text{Total compliance level of element}}{\text{Number of label element}} \times 100\% \dots\dots\dots (4)$$

RESULTS AND DISCUSSION

Type of processed food products by MSEs in Wonosobo District

Figure 1 shows the percentage of MSEs processed food products in Wonosobo District. Most types are processed grain, nut, and tuber products (32%), followed by flour/starch-based (24%) and processed fruit products (24%). Therefore, the food group's proportion was 26 flour/starch-based products, 27 processed fruit products, 35 processed grain, nuts, and tuber products. At the same time, the beverage group was represented by four samples of water-based flavored drinks. There are a small number

of MSEs products that did not show in Figure 1, such as meat (0.4%), poultry products (0.4%), dried coconut (0.4%), and seasoning (0.2%). This Figure also showed no production of fats, oils, and fats emulsions.

The unconformity of categorization based on NADFC (2019b) on Food Categories is primarily found in flour/starch-based products, was 24.5%. This shows a preview of the types of processed food when registration is necessary. The food category should identify specific characteristics (NADFC 2017). The unconformity of categorization can be influenced the analysis requirements. Therefore, the registered documents do not comply with the provisions, such as the percentage of composition leading to the shelf life or expired date. As a result, the information listed on the label does not match the product's characteristics. Therefore, it is necessary to review the types of processed food at the time of registration. The type of food should show the specific characteristics according to the food category (NADFC 2017).

There are still some types of processed foods that cannot be produced by MSEs, such as sterilization or pasteurization foods (0.2%), frozen foods (0.2%), and

mandatory foods by Indonesian National Standard or SNI (0.4%). Therefore, the NADFC is expected to conduct the assurance of SNI authorization. Sterilization or pasteurization foods were categorized as high-risk and should be registered by the NADFC. Registration of processed food should be followed by the risk-based analysis (RBA) method, which considers the potential for hazards (biological, physical, and chemical) during food production that may impact consumer safety and health. The criteria for classifying the level of risk are determined based on the target consumer, claims, production process, use of food additives, and certain raw materials with a maximum limit in their use (NADFC 2017).

Compliance level of the principal display panel

Figure 2 shows the labelling display panel level, which is a good category for flour/starch-based and water-based flavored drinks, at 73 and 75%. Besides, processed fruit products with grain, nut, and tuber products are lower at 43 and 46%. Difficulties of the label caused the lack of compliance level to see/read. The expired information was quickly replaced, and the label was easy to remove (43%).

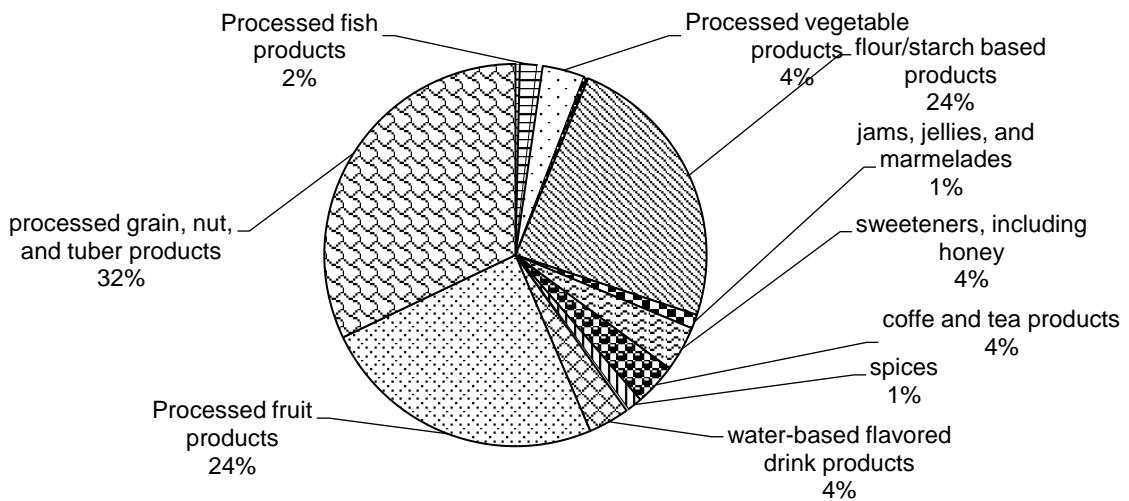


Figure 1. Type of MSEs processed food products in Wonosobo District

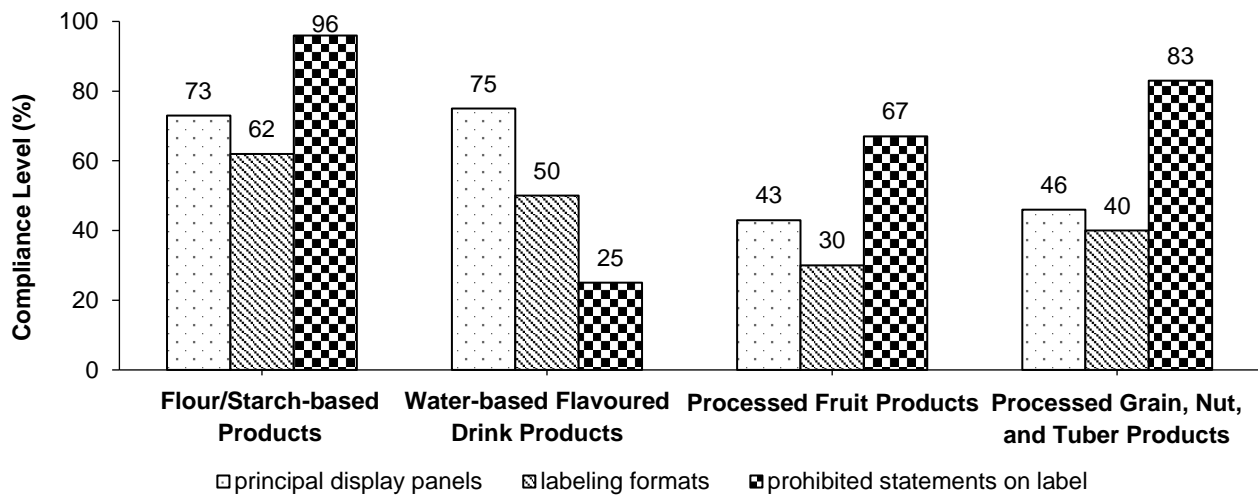


Figure 2. Component of labelling

This study found that 59.8% of labels are included in food packaging, which is in paper prints, then affixed to the outside of the transparent packaging. Furthermore, 31.5% of labels were directly printed, and 8.7% were from the packages. This indicated that the labelling technique used by MSEs in Wonosobo is still simple or minimum technology. Labelling is relatable to the packaging, which also becomes essential to protect and ensure product quality (Yan *et al.* 2022). By having packaging and its label, the whole information can be clear. The well-designed label can also make the consumer curious to increase the product's sales (Kumar and Kapoor 2016).

Compliance level of the labelling formats

Figure 2 also shows that the labelling format was suitable for flour/starch-based products (62%). However, in water-based flavored drink products, processed fruit, processed grain, nut, and tuber products, the compliance were lower with 50, 30, and 40%. This is because 98% of products still used foreign terms (in English) to write their labels, for example, "expired date", "100% organic food", "natural", "free cholesterol", "high dietary fiber" and "high vitamins" without being preceded in Indonesian. Bettman (1979) further noted that several types of study in the last 30 years studying the behavior consumers display before, during, and after the purchase has been centered on the consumer's search for information about products. Therefore, local languages facilitate the delivery of information on substantial risks and suggestions in pharmaceutical products (Stanley *et al.* 2010). This may also apply to processed food products.

The observations showed that foreign languages only write claims and taglines for the expiry information. The observation result indicates that the purpose of using English may be to attract consumers (advertisement purposes), not for misleading purposes. However, it should also remember that claims are not allowed for MSEs food products because this is related to risk studies, requiring scientific evidence (NADFC 2022). Based on the observations of letters and numbers on the label, 99% of the products have complied with the regulations. It was precise and proportional to the packaging area of the label.

Compliance level of the prohibited statement on the label

The level of compliance based on the prohibited statement on the label is also shown in Figure 2. The highest compliance level was found in flour/starch-based products at 96%. In comparison, the lowest compliance level was found in water-based flavored drink products at 25%. The compliance level of processed fruit products with grain, nut, and tuber products is a good category of 67 and 83%. This study found the prohibited labelling, consisting of food with reduced diseases claims (33.3%), without food additives as stated in NADFC Regulation Number 31 of 2018 (16.7%), nutrition and nutritional functions claims without any proved (16.7%), food as

medicine claims (8.3%), stating institutional identity (4.2%), and other information contrary to statutory provisions (20.8%).

According to Sanchez (2015), the highest risk in claims is reclassification, initially intended as processed food, then classified as drugs. This claim appears on water-based flavored beverages and processed fruit products, implying that excessive consumption is possible. Therefore, the NADFC would be revoking the production certificate when the MSEs products stated claims (NADFC 2018a) that should be registered by the NADFC, provided with adequate evidence.

MSEs are different from larger industries. They have more limitations on financial resources employees' capacity and are more vulnerable to economic turbulences. Meanwhile, claims in food labelling demands scientific evidence to prove the function of the food. Industries that intend to make health-related claims should have sufficient financial, intellectual, and innovative assets (Díaz *et al.* 2020). These adequate resources are required through all stages of research activity; therefore, MSEs poorly conduct these resources-intensive activities. Interconnection policies like stakeholders, government, financial institutions, and universities can improve the capacity of the MSE's production in food health-related claims with the minimum production cost (Purwaningsih and Hardiyati 2021; Condon-Paoloni *et al.* 2015).

Compliance level of the general requirements of labelling

According to the NADFC (2021), food labelling should include the following information; there are product name, ingredients list, net weight, name and address of the manufacturer, halal information, production code, expiry information, registration number (P-IRT number), and source of certain foodstuff. Figure 3 shows that the average compliance level of general labelling requirements is good for the four products. There are 70% flour/starch-based products, 81% water-based flavored drinks, 75% processed fruits, and 67% processed grain, nut, and tuber products.

The compliance level of the product name is good to an excellent category for the four products. The product name consists of food and trade name/brand. However, 19.6% of the products still used common names related to the food as trade/brand, such as ready-to-eat savories and cooked and fried vegetables, to decrease compliance. In Wonosobo District, 3% of products have a trademark certificate. According to Law Number 15 of 2001 on Trademarks, this label can be used as long as it does not ignore food safety, nutrition, and health.

The compliance level of the ingredients list is categorized as excellent for water-based flavored drinks (100%), flour/starch-based (81%), and processed grain, nut, and tuber products (83%), while processed fruit products are in a low category (56%). The ingredients list includes raw materials and food additives. Some labels did not comply because 3% of products were not listed, and 2% of the ingredients were not listed.

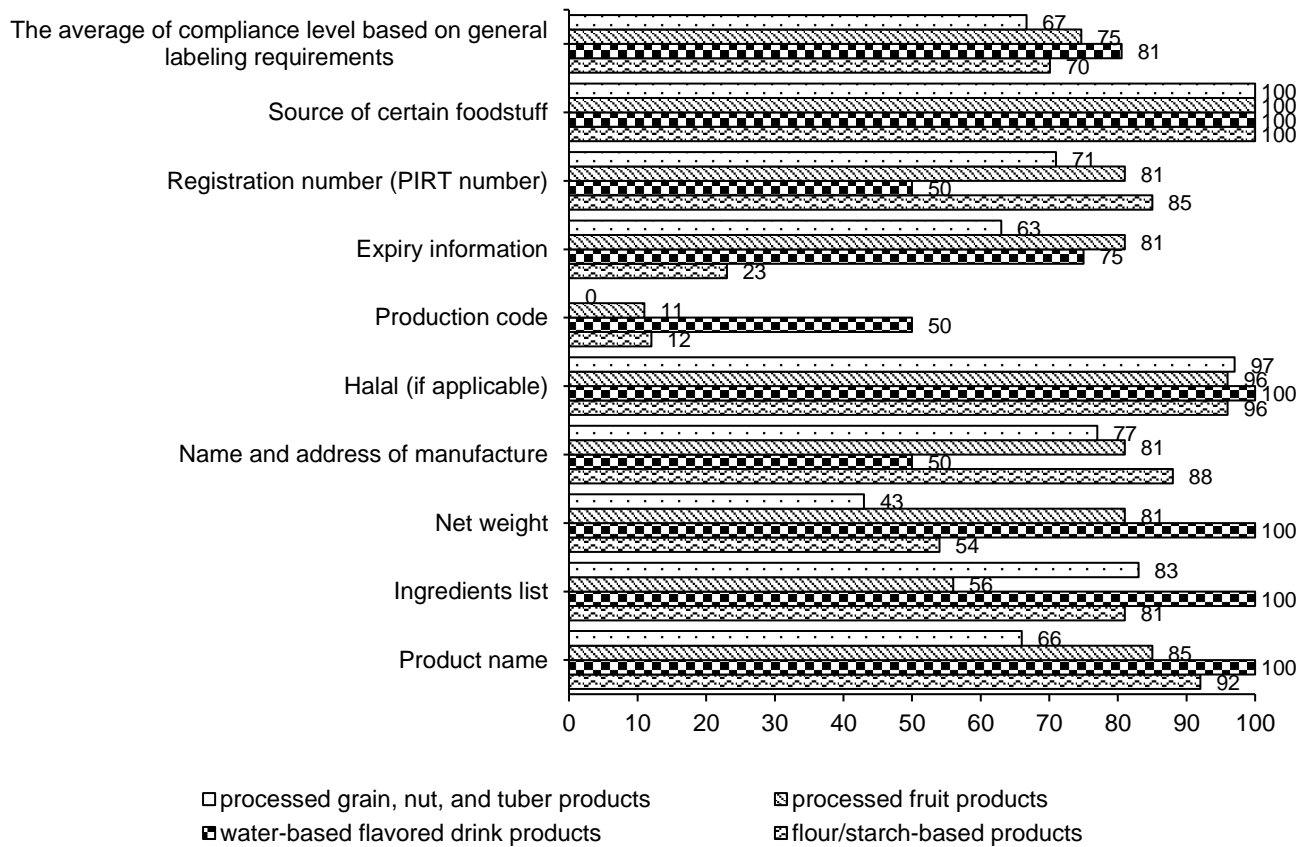


Figure 3. Compliance level of the general requirements of labelling

However, 95% of labels stated incorrect food additives information, complying with the NADFC (2018b). Food labels with additives should also have the following information: group's name, antioxidant, artificial sweetener, preservative, food color, or enhancer, additive's name, and registration number. Carryover food additives should be written after the names. The implementation of uniform labelling rules, followed by legislation governing ingredients, nutritional information, and allergens, functioned more cooperatively as a consumer protection tool (Obenchain and Spark 2016).

Net weight information compliance levels on flour/starch-based products and processed grain, nut, and tuber products are the lower categories, 54 and 43%, while processed fruit products are categorized as good (81%). An excellent compliance level is categorized in water-based flavored drink products of 100%, with the absence of net weight found in 40.2% of product labels observed. The compliance level of manufacturers' names and addresses is classified as excellent for processed grain, nut, and tuber products (88%). The compliance levels are good in flour/starch-based products (77%) and processed fruit (81%). In comparison, water-based flavored drink products are in less category (50%). Labels that did not comply are assessed because 19.6% of products do not include the manufacturer's name and address.

The compliance levels of a halal label are categorized as excellent for the four products. There is 96% for flour/starch-based products, 100% for water-based flavored products, 96% for processed fruit products, and 97% for

processed grain, nut, and tuber products. Additionally, halal labels assessed the inclusion of a halal logo. About 13% of products included a halal logo without a certificate from the *Majelis Ulama Indonesia* (MUI), and 67.4% of products did not state the logo/label in any form. According to *Lembaga Pengkajian Pangan, Obat-obatan dan Kosmetika Majelis Ulama Indonesia/LPPOM MUI*, only 10.643 MSE products (N-23.6 million units MSE) have been certified from 1994 to 2022. Therefore, halal certification is not fully implemented in Indonesia.

According to Law 33 of 2014, the Halal Product Assurance Organizing Agency (BPJPH) can issue and revoke Halal Certificates on products. Furthermore, in the Ministry of Religious Affairs Regulation (2019), manufacturers should include a halal label on all products that have received a certificate. The 2014 Halal Product Assurance Law came into force on October 17, 2019. However, the final implementing regulation is still in the grace period. According to the new Halal Product Assurance Law, all food and beverage products require mandatory halal certification and labelling by October 17, 2024. Products that have not obtained a Halal Certificate should include non-halal remarks.

According to Maulida (2013), the implementations of halal labelling provide safety, security, and assurance of the availability of halal products for society since it is an added value for business actors to sell their products. However, Wirnyaningsih *et al.* (2020) stated that there are still debates regarding halal certification from business people because they are still reluctant to certify their

products due to overhead costs. The Omnibus Law's government response is that micro and small enterprises' applications for halal certification are free of charge (President RI 2020). Therefore, this law is certainly an opportunity for MSMEs to comply with the halal assurance of their products.

The production code's compliance levels for flour/starch-based, water-based flavored drinks, processed fruits, and processed grain, nuts, and tubers are 12, 50, 11, and 0%. The labels did not comply because 91% of products did not include a production code. Overall, the products had stated a 'production code' but were not followed by a sufficient description. A production code traces food-borne disease cases, and its existence is a form of food safety assurance (Wijaya and Rahayu 2014). Food labels should be marked with either an expired or best-before date to clear how long foods can be kept. The level of compliance for this element is included in the good category for water-based flavored drinks (75%), processed fruits (81%), and processed products from grain, nut, and tubers (63%). However, the compliance level for flour/starch-based products is low at 23%. The expiry information marked on the four products' labels is written in full, namely 'expired date' or 'best before', followed by information on the date, month, and year.

The MSEs are required to include the P-IRT number following the food registration number. The P-IRT number holds at least 15-digit numbers; the last two indicate the year of validity (NADFC 2018a). The compliance level of stating the P-IRT number shows an excellent category for flour/starch-based products (85%). In addition, compliance levels are in the good category for processed fruits (81%) and processed grain, nut, and tubers (71%). Besides, the level of compliance for water-based flavored drinks is in a low category (50%).

The lack of compliance with this label information was determined by 95% of items lacking a completed P-IRT number with a length of fewer than 15 digits (without including the last year of validity). Meanwhile, 5% of other products did not include their P-IRT numbers when distributed. Processed food should have a registration number, except for processed food with a shelf life of fewer than seven days, which is voluntary (President RI 2019). The compliance levels for information on certain foodstuffs' sources were an excellent category (100%) for the four types of products. The compliment of this element reaches the highest value compared to the requirements for others. This is because the products were not included with the origin of certain foodstuffs; therefore, there are no reasons that oblige the information.

Other information besides the general requirements may be included on the label when correct/not misleading. Also, the information stated should comply with the provisions of the regulations. For example, the MSEs food product labels in Wonosobo District included several other information on nutritional content or 'Nutrition Facts' (21.6%), serving suggestion (29.4%), storage suggestion (21.6%), organic processed food label (1.9%), consumer services (13.7%), safety and quality certifica-

tion (3.9%), logos and sign related to environmental sustainability (2.0%), and quality of processed food information (5.9%).

About 81.8% of MSEs food products in Wonosobo District did not comply with the correct nutrition information. Another 18.2% have listed nutritional information following NADFC (2019a) on Processed Food Labels. Furthermore, on July 17, 2020, the NADFC Regulation Number 16 of 2020 concerning the Inclusion of Nutritional Information for Processed Food Produced by Micro and Small-sized Enterprises to facilitate MSEs was stipulated. The regulation contains 42 types of processed food that may use the nutritional value reference and the serving size. The MSEs are not required to include a certificate of analysis (CoA) when the nutritional information is included on the processed food label.

The procedure for inclusion of nutritional information is almost the same as NADFC Regulation Number 22 of 2019, which contains information on serving sizes, the number of servings per package, types, and amounts of nutrients containing total energy, total fat, saturated fat, protein, total carbohydrates, sugar, and salt (sodium), RDA percentage, as well as footnotes. However, 20.6% of food products complied with the NADFC Regulation (2020) but had not included nutritional information, even though they were considered before buying processed food products.

The nutrition label has provided information about several foodstuff values and provided the primary goal of assisting consumers in making healthier food choices. In addition, the WHO recommended using this labelling to reach global nutrition targets and prevent non-communicable diseases (WHO 2004). Therefore, policies promoting the implementation of simplified nutritional labelling can be essential strategies to improve population diets (Al-Jawaldeh *et al.* 2020).

Other information that should be included in labelling MSEs products in the Wonosobo District is allergens. The labelling should be stated when the food product contains allergens and is produced using the same production facilities (NADFC 2019a). About 23.9% of MSEs products contain allergens based on their composition. However, none contain allergen information, such as wheat, eggs, soy, and milk. This information can be included in the composition section in bold type and includes the words "Contains allergens, see list in bold" or "Contains allergens: (followed by the allergen in bold) (NADFC 2021).

Another critical piece of information to be included on the labels is health information labelling. Overall, the MSEs products in Wonosobo District had not included this. This labelling is regulated by the Minister of Health (2013). This regulation protects consumers against the risk of non-communicable diseases and educates the public by including health information. Various public information campaigns to promote healthy behavior improved knowledge, attitude, and skills. To make long-term dietary adjustments, instructional tools are required in addition to the information on the label.

The NADFC has policy directions, such as strengthening the regulatory system through legal aspects, regulation, and standardization in its functions. Indrayana and Palupi (2014) stated that implementing regulations related to including information on health messages requires multisectoral synergies, such as the government (NADFC), manufacturers, and educational institutions.

Average compliance level of labelling

Figure 4 shows the average compliance level of labelling is less in water-based flavored drinks (58%), processed fruits (54%), and processed grain, nut, and tuber products (59%), while flour/starch-based products and their processed products are in a good category (75%). The labelling compliance level in Wonosobo District was lower than Wijaya and Rahayu's research in 2014 in Bogor, ranging from 72 to 74% (good category). Wonosobo District still has its food control system centralized at the province level (*Balai Besar POM* in Semarang). However, food control in Bogor is currently better with an inaugurated district level (*Loka POM*). Processed food problems, including labelling control, will be resolved more quickly by *Loka POM*.

The knowledge of MSMEs should be essentially considered. Farida and Ayuningtyas (2019) state that labelling regulations on MSMEs products can be optimal when the government can increase its communication, resource allocation, monitoring, evaluation, and effective coordination across sectors. Food labelling socialization is essential to consciously apply labelling according to existing regulations (Rosmalia and Sriani 2017). Resource allocation is the key to successfully implementing labelling, including funding, human resources, and facilities. This is related to the frequency of sociali-

zation conducted (Farida and Ayuningtyas 2019). In line with Phulkerd *et al.* (2017) statement, low policy implementation in developing countries is due to a lack of resources.

Food labels are still challenging for a manufacturer, especially in small enterprises, because the officers cannot convey the information clearly when assisting or consulting in the field (Farida and Ayuningtyas 2019). The availability of adequate resources also supports the implementation of maximum labelling monitoring and evaluation. Furthermore, monitoring and evaluation are needed to identify gaps between policymakers. In addition, multi-sectoral stakeholder involvement strengthens coordination. This is in line with Khalid (2016), where the lack of cross-sector coordination reduces policy implementation.

Presidential Instruction Number 3 of 2017 identified the NADFC as the coordinator to improve food monitoring effectiveness by working with several stakeholders, including Public Health Officers. Food labels usage leads to more favorable choices for public health. This improves the compliance level of labelling in manufacturers and effectively develops nutrition knowledge improvement programs (Bryla 2020).

CONCLUSION

The average compliance levels of labelling for the four product categories were good for flour-and starch-based (75%). Meanwhile, water-based flavored drinks (58%), processed fruits (54%), processed grains, nuts, and tubers (59%) were in a less category. Further study is needed to evaluate the knowledge of MSMEs in food labelling regulation and their compliance.

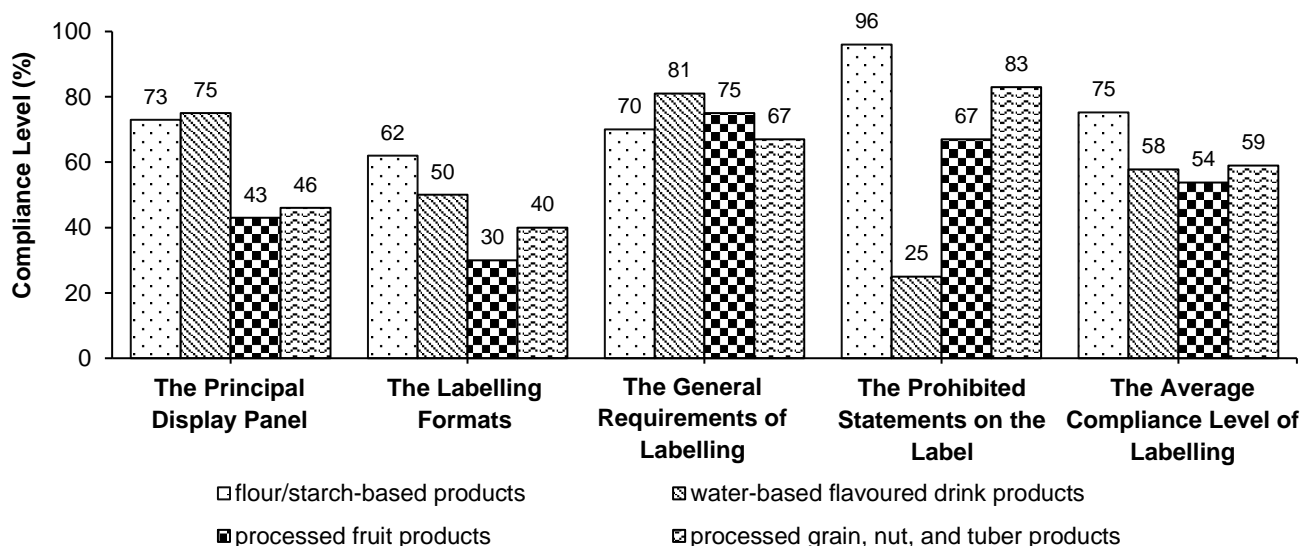


Figure 4. Average compliance level of labelling for food products

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